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A Summary of Current Program 7/1/63

and Preliminary Report of Progress

for 7/1/62 to 6/30/63

CONSUMER AND FOOD ECONOMICS

RESEARCH DIVISION

of the

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

This progress report of USDA and cooperative research is primarily a tool for use of scientists and administrators in program coordination, development and evaluation; and for use of advisory committees in program review and development of recommendations for future research programs.

The summaries of progress on USDA and cooperative research include some tentative results that have not been tested sufficiently to justify general release. Such findings, when adequately confirmed, will be released promptly through established channels. Because of this, the report is not intended for publication and should not be referred to in literature citations. Copies are distributed only to members of Department staff, advisory committee members and others having a special interest in the development of public agricultural research programs.

This report also includes a list of publications reporting results of USDA and cooperative research issued between July 1, 1962, and June 30, 1963. Current agricultural research findings are also published in the monthly USDA publication, Agricultural Research. This progress report was compiled in the Consumer and Food Economics Research Division, Agricultural Research Service, U. S. Department of Agriculture, Washington 25, D. C.

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## INTRODUCTION

Consumer and Food Economics Research is concerned with surveys of the kinds, amounts, and costs of food consumed by different population groups and the practices of families in the purchase and household use of various foods; nutritional appraisal of diets and food supplies; surveys of the quantities of goods and services used for family living by rural households; special studies of clothing and household textile use by families; and studies of family practices in their management of financial and other resources. To facilitate improvement of the dietary situation, rural levels of living and home management practices, informational aids are prepared such as food budgets, dietary guides, and other materials to help families make the most advantageous use of their money and time resources.

Two reports published this year are designed to help professional home economists--extension workers, teachers, social welfare workers--and other leaders give sound counseling to families. "Family Food Plans and Food Costs" explains the Department's family food budgets, the procedures used in their development, and the methods followed in estimating their costs. "Helping Families Manage Their Finances" describes the steps families may follow and some of the things they may consider in planning their spending. It contains much research-based information relating to patterns of expenditure for family living and the use and cost of credit for family living purposes.

One of the most widely used of the Division's publications is Agriculture Handbook No. 8, the standard U. S. reference volume on the composition and nutritive value of foods. The completion this year of the first major revision is the culmination of the work of many years. The tables of the new edition contain data for some 2,500 foods--more than 3 times as many as the 1950 edition--and for 7 additional nutrients. The tables, text, and extensive appendices are used in appraising diets, developing guidance materials on food selection, and planning and carrying out many types of research. They are widely reprinted in textbooks and other types of reference materials and in educational and advertising materials issued by industry.

The tables of food composition together with data on estimated quantities of foods consumed per capita as developed by the Economic Research Service provide the bases for annual estimates of the nutritive value of the national food supply. This series, extending back to 1909, is useful not only in showing trends in the amounts of nutrients available, but for the information it supplies on the changing food sources of various nutrients. Special computations recently made for fatty acids show that since 1930 there has been no significant change in the use of saturated fatty acids--the decline in butter consumption has offset the increase in consumption of other foods, chiefly beef; but there has been an estimated increase of 31 percent in linoleic acid arising from an increased consumption of such foods as salad and cooking oils (corn, cottonseed, soybean) and poultry.

Much of the source material for both technical and popular publications of the Division is derived from household surveys. Currently the Division is participating with other Federal agencies in the nationwide 1961 Survey of Consumer Expenditures. Collection of the data was completed, and progress made on the processing during this year. A new survey of household food consumption, originally scheduled for 1965, has been tentatively moved up to 1964. Preliminary plans have been made for it to include information on diets of individuals as well as the household unit.

Nationwide surveys are made at infrequent intervals--8 to 10 years. They are essential for providing benchmarks, measuring progress, and identifying population groups with diets or levels of living most in need of improvement. They are supplemented by small surveys focusing on special problems--on food problems of the older household; on low-income families and the effects of government programs on their diets, or, in rural areas, their expenditure patterns; on the feasibility of paid employment for the homemaker; on household practices in food discards, or on handling of frozen foods. Information from such investigations provides the research-based materials needed by nutritionists, home economists, teachers and extension workers, social workers, consumer educators, and others in developing their programs. Public officials responsible for programs of food distribution and other agricultural and social programs rely heavily on the results of these investigations.

Two periodicals issued regularly by the Division help to disseminate research findings or current information of concern to the groups reached--Nutrition Committee News prepared for members of State nutrition committees and other workers in nutrition education; and Family Economics Review, servicing extension agents, teachers, and other professional workers interested in family and food economics and home management. An Outlook issue summarizes the contributions of concern to home economists made at the Annual Agricultural Outlook Conference.

A special effort has been made to help Nutrition and Consumer-Use Research make maximum contribution to programs for low-income people. A home economist experienced in research, extension, and action programs was appointed as Assistant to the Director of the CFE Division. Her major concern has been the interpretation of nutrition and consumer-use research to the Rural Areas Development Program, an agency-wide program to raise incomes and levels of living of low-income rural families. She has already done much to show the contribution that home economics can make in this effort. She also is alert to the kinds of research-based information needed in the RAD and other programs to help low-income families and suggests research projects that need to be undertaken by the appropriate divisions of Nutrition and Consumer-Use Research.

The Consumer and Food Economics Research Division's research in 1962-63 was conducted in Washington, D. C. except for work on three projects under contract or cooperative agreement equivalent to about 1 man-year. Of the total professional 40 man-years in 1962-63, 20.6 were devoted to research related to food consumption and diet appraisal conducted by the Food Consumption and Diet Appraisal Branches of the Division, 9.3 man-years to tables of food composition conducted by the Diet Appraisal Branch; 9.1 to family economics conducted by the Family Economics Branch; one staff member had special responsibility for Rural Areas Development. A survey statistics staff provided its services to each of the branches.

## AREA NO. 1. FOOD CONSUMPTION AND DIET APPRAISAL

Problem. Adequate information about food consumption and dietary levels is essential to effective consumer education especially in nutrition, to market analyses, and to agricultural policy and program evaluations--both to provide benchmarks and to measure progress. Needed are periodic surveys of the kinds, amounts, and costs of food consumed by different population groups; practices of families in the purchase and household use of specific foods; and nutritional appraisals of diets and food supplies. To facilitate improvement of the dietary situation, suitable source material such as food budgets and dietary guides based on advancing knowledge about food and nutrition should be developed for use in nutrition education programs, particularly with teenagers, low-income families, and older people whose diets are known to be most in need of improvement.

### USDA PROGRAM

The Department has a continuing long term program involving nutritionists, home economists, and statisticians engaged in applied research in food consumption and diet appraisal. Most of the research is conducted in Washington, D. C., or occasionally under cooperative arrangement with the State Experiment Stations (currently one such cooperative agreement is underway at the Minnesota Agricultural Experiment Station), or under contract with universities or private firms. One such contract with a private firm was executed during the report period.

The Division's scientific effort devoted to research in this area in Fiscal Year 1963 totaled 20.6 professional man-years. Of this number, 7.1 man-years were devoted to food consumption and dietary levels of households; 4.0 to food consumption and dietary levels of individuals; 2.2 to  nutritive value of national food supply; 1.7 to  food management practices; 2.5 to development of food budgets; and 3.1 to  basic data for food and nutrition programs.

### REPORT OF PROGRESS FOR USDA AND COOPERATIVE PROGRAMS

#### A. Food consumption and dietary levels--nationwide surveys of households

Planning for proposed nationwide survey. Because the next nationwide food consumption survey, originally scheduled for 1965 in the Department's long-range statistical program, is now, at the request of the Bureau of the Budget, proposed for 1964, planning discussions have been held with other government agencies collaborating in the survey, and a pilot study in the Washington, D. C. area initiated.

According to present plans, data will be obtained in the spring of 1964 on the kinds, quantities, and costs of food used in a week's period by 6,000 households representing urban, rural nonfarm, and farm communities in different regions of the country. At each of the other three seasons of the year, similar data are to be obtained from about 1,500 families.

In the pilot study in the District area, data were obtained on the kinds, quantities, and costs of food used in a week's period by 150 households. The major objective of this study was methodological--to answer questions on how to carry out a study of individual diets in conjunction with a household survey (see C-1 below) and current plans are to tabulate only the data that will provide information to help solve such problems. Later the data on household food consumption may be tabulated and reported. Information from the 1955 survey, particularly measures of variability and distributions of households with specified characteristics (unavailable from Census data) have been used extensively in the development of plans for the new survey.

An analytical study of consumer response to the relative price of store versus delivered milk was supported in part by the Consumer and Food Economics Research Division, and reviewed by staff members. The study was based on the U. S. Bureau of Labor Statistics survey data, spring 1951, and on U. S. Department of Agriculture prices in 36 cities. The variables introduced were the relative quantities of milk purchased in stores or delivered, the relative prices of the store and delivered milk, average income, household size, and purchases of bread and coffee (as proxy variables indicating composition of the household). The findings suggest that consumers are more highly responsive to the relative prices of store and delivered milk than has been assumed.

B. Food consumption and dietary levels--area or special-purpose surveys of family or institutional households

1. Food consumption and dietary levels of selected low-income population groups. A report of the findings of the food consumption survey of aged beneficiaries of Old Age and Survivors Insurance made in Rochester, New York in the spring of 1957 has been completed and sent to the editors. The survey included 283 1- or 2-person households. Half of these were husband-wife families; nearly one-third were women living alone; less than one-tenth were men living alone. Family incomes were relatively low. The average age of the family members was 72 years.

During the survey week food that was brought into the kitchens of these households provided about the following amounts per person: 4 quarts of whole milk or its equivalent in milk products; 4 pounds of meat, poultry, fish; 1/2 dozen eggs; 10 pounds of vegetables and fruits; 2 pounds of grain products (in terms of flour); 1 pound of sugars and sweets; and 3/4 pound of fats and oils. The total money value of all food per person was \$8.12.

Nutrients from this food more than met the National Research Council's recommended allowance for the average person. However, less than half (44 percent) of the households had diets which met in full the recommended amounts for all nine nutrients (good diets). Nearly three-fourths of the households had diets that met two-thirds of the recommendations for all nutrients (good and fair diets). Men living alone had the highest percentage of good diets (48 percent), but they also had the highest percentage of poor diets (39 percent). The nutrients which fell below the recommended allowances most often were thiamine and calcium.

About one-third of the households reported some use of vitamin preparations during the survey week. Half of those taking vitamins already had met the recommended intakes from their diets. Of those whose diets failed to meet the recommended levels in any nutrient and who were taking supplements, only one-fourth were using preparations that covered all of their dietary shortages.

Analysis of factors that might have affected dietary adequacy indicate a close relationship between poor diets and low food expenditures. Also related to poor diets were poor appetite and older age even among a group none of whom were young. Contrary to popular belief, chewing difficulties and diseases requiring special diets were not related to the consumption of poor diets.

A special study was made of the meals eaten by the household members during the 2 days preceding the interview. This study showed that 1 in 8 of the individuals had omitted one or more meals--mostly the noon meal. Half of the group did some between-meal eating.

This group of elderly people had few meals away from home and when they did eat out it was more often as guests than as restaurant patrons. Noon meals eaten out by husbands were larger in terms of nutrients than their noon meals at home. However, wives ate meals containing about the same amount of nutrients whether at home or away from home. Women who lived alone consumed about the same amount when they purchased noon meals as when they prepared them at home, but ate much more when they were guests.

## 2. Effects of food distribution programs on diets of needy families.

The series of food surveys conducted in low-income areas to aid in the study of the effects of food distribution programs on diets of families has been extended to include a survey carried out in Choctaw County, Oklahoma and in Pensacola, Florida. These were conducted cooperatively with the Marketing Research Division, Economic Research Service as were the surveys in Detroit, Michigan and Lafayette County, Pennsylvania reported previously.

The study in Choctaw County, carried out in the fall of 1962, was expected to be followed by a second collection after the initiation of a contemplated food stamp program. Although such a program was not initiated, the one survey provided information helpful to the administrators of the program, and will add to our knowledge of diets in low-income areas and the effectiveness of the donated food program. The Pensacola study, conducted in the spring of 1963, concerns the food consumption of households prior to the initiation of a food donation program. Similar data on food consumption will be obtained after the food donation program has been in operation for a few months.

A report is in preparation comparing the effects of the food donation and food stamp program based on evidence from this series of studies.

#### C. Food consumption and dietary levels of individuals

1. Food consumption of individuals related to economic and social factors. In conjunction with a nationwide survey of households now planned for 1964 (see A above), a study of the diets of individuals has been proposed. The Department of Health, Education, and Welfare has expressed urgent need for data on individuals especially as a basis for estimates of radionuclide residues. Beginning in January 1963 a number of meetings of interested staff from the Departments of Agriculture and of Health, Education, and Welfare, and from the Bureau of the Budget and the Census Bureau were held to discuss the various needs of the agencies for the data, anticipated problems in collection of the data, cost estimates of alternative plans, and agency resources.

During these discussions technical questions were raised relating to the problems of collecting information on individual diets in connection with a household food consumption survey. In order to obtain information bearing on these problems, a pilot study to be carried out in Washington, D. C., was designed and approved for collection in June and July 1963.

The major questions to be explored in the pilot study are: (1) can diets of individuals be added to the household schedule without decreasing the response rate to an unacceptable level, and (2) is it easier for the home-maker to report on the individual's intake as such rather than as a proportion of the total amount of the food used by the household, so that a subsampling of individuals within the household may be made at an appreciable saving in collection costs.

The design of the pilot study involves three parallel samples with three collection plans. It is expected that 1-day diets of some 450 individuals will be obtained. Although the major purposes of the study will be served by providing evidence to help in making decisions regarding the scope and design of the proposed nationwide survey, it is possible that later computations of the average diets of individuals by age and sex in the District of Columbia will be made, studied, and reported.

Work on the review and summarization of studies of food consumed by individuals being carried out through a cooperative agreement with the Minnesota Agricultural Experiment Station has been somewhat revised in order to mesh better with the proposals for the nationwide survey. Efforts are being concentrated on analyses of several of the more complete sets of data--the food consumption of women, and the food consumption of 9-, 10-, and 11-year old children. Interrelationships of food quantities, nutritional problems and socio-economic factors are being explored.

2. Diets of business and professional men, 1953 and 1954. With the publication of the report "The Diet and Some Health Characteristics of 123 Business and Professional Men and Methods Used to Obtain the Dietary Information" (September 1962) most of the work on this study conducted in cooperation with the School of Medicine of the University of Minnesota has been completed. The diets of the men were examined in relation to the blood serum cholesterol levels. The diets of the third with relatively low serum cholesterol were markedly similar to the third with the highest level in calories, protein, fat, calcium, iron, and dietary cholesterol. The largest difference between the diets of the two groups of men was that the high-serum-cholesterol group got more of its calories from alcohol and from rapidly absorbed simple sugars and fewer calories from grain products and vegetables.

One other analysis is in preparation; this is an evaluation of the 1954 nutrient intake of 63 men in relation to their earlier intakes in 1944 and in 1934.

D. Nutritive value of national food supply

The nutrient content of the per capita food supply is calculated and published each year, using data on estimated quantities of foods consumed (retail-weight basis) as developed by the Economic Research Service. This series, with estimates extending back to 1909, is the only source of data on year-to-year changes in the nutrient content of the U. S. per capita food consumption. Not only the trends in the amounts of the nutrients available, but information on the changing food sources of various nutrients is useful to nutritionists. For example, a comparison of the dietary fat provided by the individual foods within the fats and oils group in 1930 and 1962 revealed important changes. The proportion of dietary fat furnished by butter and lard in the fats and oils group decreased markedly--butter from 25 to 10 percent, and lard from 22 to 14 percent. These declines were compensated for by larger consumption of margarine, shortening and salad and cooking oils. The proportion of dietary fat furnished by margarine rose from 4 percent in 1930 to 13 percent in 1962; by shortening, from 17 to 22 percent; by salad and cooking oils, from 10 to 20 percent. Special computations were made for fatty acids. Such estimates show that since 1930 there has been no significant change in the use of saturated fatty acids--the decrease in consumption of butter was offset by the increase in consumption of other foods, chiefly beef. The estimates, however, did show considerable increase

in linoleic acid--an increase of 31 percent--as a result of the increased consumption of some foods rich in linoleic acid (salad and cooking oils, corn, cottonseed, soybean, and poultry).

A survey conducted by the Census for the Consumer and Food Economics Research Division has provided information on quantities of enrichment ingredients supplied to processors in fortifying such cereal products as commercial or family flour, ready-to-eat and hot cereals, and cornmeal and hominy grits. For the first time information has also been obtained on quantities of certain vitamins sold for nutritive application in such selected foods as fruit juices, and fruit drinks, and flavored milk extenders. The last survey of food enrichment was made in 1953. The up-to-date findings will be incorporated in a complete revision of the nutritive value of the national food supply now in progress. The new estimates will incorporate some revised data of the Economic Research Service on per capita quantities of foods consumed, the new Handbook No. 8 food composition values, and revised cooking loss factors.

#### E. Food management practices

1. Use and discard of food in households. The results from three small studies based on records kept by the homemaker on the kind, amount, and nutritive value of foods used and discarded in households have been summarized for presentation in a journal article. In terms of total calories available for consumption, discarded edible food averaged 7 percent in St. Paul, Minnesota; 8 percent in DeKalb County, Missouri; and 10 percent in Los Angeles, California. (This reduces the 2,600 calories per person per day in food supplies of the city groups to 2,300 and 2,400 calories presumed eaten and the 3,000 calories of the farm group to 2,800 calories). Because of the difficulties inherent in getting complete reporting by households of food discarded, these percentages for loss of calories may be low. Since more of the calories of discarded food represent fat than protein or carbohydrate, the information helps to explain the relatively high percentage of calories from fat in household food supplies. These dropped 4 percentage points when adjusted for discarded food in Los Angeles households from 42 to 38 percent. The smallest drop, one percentage point, occurred among farm households in DeKalb County, Missouri, from 43 to 42 percent.

A study using "recall questions", instead of records, with a random sample of 300 households in Minneapolis-St. Paul to obtain information on the use and discard of food during a 7-day period in the winter of 1960 is currently being processed.

2. Household practices in handling and storing of frozen foods. According to the findings from the report, in press, on household studies carried out in Baltimore, Maryland and Indianapolis, Indiana in two seasons, household practices alone would not cause serious quality deterioration of frozen foods. However, a large percentage of households stored frozen foods above the recommended storage temperature. This fact, and the wide variability in

temperature for various types of storage unit suggests that the need for improved temperature control or early use of frozen products should be emphasized. Purchased frozen foods were not held for long periods by most of the families surveyed.

A new study has been initiated of the management practices of urban and farm homefreezer owners. Fort Wayne, Indiana and a nearby rural area have been selected for the survey which will be conducted under contract. In recent years the number of freezer owners has increased by approximately one million a year. The relative advantages of homefreezer ownership, particularly with regard to costs involved, is of concern to home economists who give guidance to families in family management. The survey is designed to obtain information on such actual management practices of homefreezer owners as the kinds, amounts, sources, prices, and rate of turnover of foods frozen and stored in the home.

F. Development of food budgets--individual, household, institution

With the publication of the report "Family Food Plans and Food Costs" the technical work on the development of the Department's current low-cost, moderate-cost and liberal food plans was completed. The continuing phases of the work on individual and household food budgets consists in the regular pricing of the food plans for publication in Family Economics Review, and in dissemination of information concerning them through such popular publications as "Family Food Budgeting for Good Meals and Good Nutrition," through film-strips ("Food for the Young Couple"), and through correspondence, talks and committees (such as the Advisory Committee to the Bureau of Labor Statistics on their City Workers' Standard Budget).

Progress on the revision of Handbook No. 16, "Planning Food for Institutions" has focused primarily on the food purchasing guide section, which may be published as a separate in advance of the revised handbook. Tables have been prepared for review that give weights of purchase units, yields, size of portions, number of portions per purchase unit and units required to serve 25 and 100 persons for foods commonly used in institutions.

G. Basic data for food and nutrition programs

The ongoing program of interpretation and application of nutrition research findings to practical problems for use by nutritionists, teachers, health workers, and other leaders concerned with nutrition education or nutrition policies has involved the preparation or review of articles and publications, talks to interested groups, television interviews, and participation in various conferences and committees.

Nutrition Committee News, a bimonthly periodical prepared for members of State nutrition committees and other workers in nutrition education provides one channel for disseminating pertinent information and for reporting nutrition education activities. Examples of subjects of current interest covered during the report period are: "Nutritional Aspects of Selected Studies of

Cardiovascular Diseases-Implications for Nutrition Education," descriptive of four research studies having a nutritionist on the research team; and "Planning Nutrition Programs for Elementary School Teachers," prepared as a result of requests from curriculum directors for specific information on what and how to provide an extension of background in nutrition for elementary school teachers; and "Food Guides--A Teaching Tool in Nutrition Education" prepared as a result of many comments from nutrition workers concerning the use and abuse of food guides, and designed to keep further abuse to a minimum.

Publications in preparation that are designed for the use of teachers, extension workers and other leaders are (1) a semi-popular publication on nutrition in the series Facts for Nutrition Education; (2) a report on fat and related components in U. S. diets; and (3) a study of the relative economy of foods.

Information developed under this program is provided to many groups both within and outside the Department working on practical food programs, on questions relating to nutritional requirements, food consumption, nutritional importance of specified foods and on nutrition education. Staff members participated in the World Food Congress held in Washington, D. C., June 4-18; one member of the staff served as consultant to the President's Commission on the Status of Women; cooperation or information was given to the School Lunch Branch, AMS; to the Information Division, ARS in adapting material for use in "Packet for the Bride." There was participation in such workshops or meetings as the Chicago Nutrition Council, the Virginia School Lunch Conference, and a Louisiana State University workshop on nutrition.

#### PUBLICATIONS REPORTING RESULTS OF USDA AND COOPERATIVE RESEARCH

##### Food Consumption and Dietary Levels--Nationwide Surveys of Households

Consumer and Food Economics Research Division. 1963. Food consumption and dietary levels of households of different sizes, United States--by region. Household Food Consumption Survey 1955, Rpt. No. 17. 168 pp.

Reid, M. G. 1963. Consumer response to the relative price of store versus delivered milk. Jour. of Political Economy. 61(2).

##### Food Consumption and Dietary Levels of Individuals

Adelson, S. F. and Keys, A. 1962. The diet and some health characteristics of 123 business and professional men and methods used to obtain the dietary information. ARS 62-11. 280 pp.

Adelson, S. F. 1962. Surveying the food we live by. Nutr. News of the Nat. Dairy Council. 25(4):13-14.

Nutritive Value of National Food Supply

Consumer and Food Economics Research Division. 1962. Percentage of total nutrients contributed by major food groups in selected periods. Supplement for 1961 to Agr. Handbook 62, Consumption of Food in the U. S. pp. 53-55.

Consumer and Food Economics Research Division. 1962. Nutrients available for consumption per capita per day, 1909-61. Supplement for 1961 to Agr. Handbook 62, Consumption of Food in the U. S. p. 51.

Consumer and Food Economics Research Division. 1962. Nutrients available from civilian consumption per capita per day 1935-39 and 1947-49 averages, 1960, 1961, and preliminary estimates for 1962, with percentage comparisons. Table 4. Nat. Food Sit. Oct. p. 22.

Consumer and Food Economics Research Division. 1962. Percentage of total nutrients contributed by major food groups, civilian consumption, 1962. Table 5. Nat. Food Sit. Oct. p. 23.

Consumer and Food Economics Research Division. 1962. Fatty acids available from civilian consumption, 1930, 1962. Table 6. Nat. Food Sit. Oct. p. 24.

Consumer and Food Economics Research Division. 1962. Nutritional Review. Nat. Food Sit. Oct. pp. 21-25.

Food Management Practices

Redstrom, R. 1962. Consumer practices in handling and storing of commercially frozen foods. Family Economics Review, ARS 62-5. Sept. pp. 3-7.

Development of Food Budgets--Individual, Household, Institution

Consumer and Food Economics Research Division. 1962. Estimated cost of 1 week's food. In Family Economics Review, ARS 62-5. (USA average issued quarterly, estimates for four regions issued annually).

Consumer and Food Economics Research Division. 1962. Food for the young couple. Home and Garden Bul. 85. 16 pp.

Cofer, E., Grossman, E., and Clark, F. 1962. Family food plans and food costs, for nutritionists and other leaders who develop or use food plans. Home Economics Research Rpt. No. 20. 54 pp.

Basic Data for Food and Nutrition Programs

Consumer and Food Economics Research Division. 1962. Proc. of nutrition education conference, Jan. 29-31, 1962. Misc. Pub. 913.

Hill, M. M. 1962. Guidelines for nutrition education programs-low income families. Nutrition Committee News. July-Aug. 4 pp.

Hill, M. M. 1962. Nutrition committee members meet in Miami Beach. Nutrition Committee News. Sept.-Oct. 4 pp.

Hill, M. M. 1962. Nutritional aspects of selected studies of cardiovascular diseases--implications for nutrition education. Nutrition Committee News. Nov.-Dec. 4 pp.

Hill, M. M. 1963. Nutrition education conference 1962--evaluation and followup. Nutrition Committee News. Jan.-Feb. 4 pp.

Hill, M. M. 1963. Planning nutrition programs for elementary school teachers. Nutrition Committee News. Mar.-Apr. 4 pp.

Hill, M. M. and Page, L. 1963. Food guides--a teaching tool in nutrition education. Nutrition Committee News. May-June. 4 pp.

Hill, M. M. 1962. Role of the home and the school in nutrition education of children. Ohio Parent-Teacher. Oct. pp. 19-20.

Hill, M. M. 1962. Nutrition education from the laboratory to the dining room. Food and Nutrition News (Nat. Livestock and Meat Board). Oct. pp. 1 and 4.

Morris, M. M. 1963. The President's commission on the status of women considers new and expanded services. Family Economics Review, ARS 62-5. Mar. pp. 10-11.

Peterkin, B. B. 1963. Protein bargains. Family Economics Review, ARS 62-5. June. pp. 3-6.

Phipard, E. F. 1962. Guides to diet and nutrition from the U. S. Dept. of Agriculture. Postgraduate Medicine. 32(1):75-78.

Phipard, E. F., and Page, L. 1962. Meeting nutritional needs through food. Borden's Review of Nutrition Research. 23(3):31-44.

## AREA NO. 2: TABLES OF FOOD COMPOSITION

Problem. Reliable food composition values are needed for appraisal of diets and food supplies, as background for many different types of research in foods and nutrition, for developing educational materials to help in dietary planning and food selection, for use in production planning for this and other countries, for developing programs of food distribution, and in formulating regulatory programs.

### USDA PROGRAM

Continuous research is conducted into the world's scientific and technical literature on the composition of foods--over 100 journals in addition to numerous special reports being reviewed by the staff of nutrition analysts. For 70 years tables of data for certain nutrients in foods have been published by the U. S. Department of Agriculture. Each new publication reflects advances both in food analyses and in knowledge of nutritional needs--nutrients being added as information on their presence in foods and human requirements for them become available. Also reflected are advances in technology of preparing and marketing food and augmented facilities for fast transportation.

The Federal scientific effort devoted to work in this area conducted in Washington, D. C., in Fiscal Year 1963 totaled 9.3 professional man-years, distributed to the commodity groups as follows: animal products, 3.7; grain products, 1.4; horticultural crops, 2.7; oilseeds, peanuts, sugars, 0.4; other and multiple products, 1.1.

### REPORT OF PROGRESS OF USDA AND COOPERATIVE PROGRAMS

Major progress has been made on three publications:

1. The 1963 revision of Agricultural Handbook No. 8 "Composition of Foods... raw, processed, prepared" consisting of an explanatory text and 13 tables, was prepared and carried through the clearance, editing and galley proof phases of the publication process. The first two tables comprise the heart of the volume: Table I--Composition of Foods, 100 grams Edible Portion-- includes nutrients for 2,483 food items; and Table II--Nutrients in Edible Part of 1 Pound of Food, as Purchased--includes nutrients for 2,062 food items based on 1,760 items from Table I and 302 subitems which varied in refuse. Data in other tables include selected fatty acids in foods (more than 400 items), cholesterol content of foods (over 35 items), magnesium content of foods (more than 440 items), and such supplementary information as factors for calculating protein from nitrogen content of food, standards for enrichment, and calcium and sodium content of bread and roll items made with sodium propionate. In addition to the published report, decks of punched cards used for tabulation of tables I and II will be made available for research or operational needs.

2. Data in the popular publication, Home and Garden Bulletin No. 72 "Nutritive Value of Foods," issued in September 1960, have been brought up to date to agree on a weight basis with nutritive values in the new Handbook No. 8. A revised edition of this bulletin, which provides nutritive values of household measures of 512 commonly used foods, will be issued.

3. A popular publication, Home and Garden Bulletin No. 90 "Conserving Nutritive Value of Foods," is also in press. The information in this bulletin was based on a compilation of research findings on the relationship between the nutritive value of foods and methods of food preparation and storage. With the assistance of information specialists, the data have been adapted for use by families.

#### A. Animal products

Composition data for about 100 items of milk and predominantly milk products are included in the revision of Handbook 8. In addition to cows' milk at both 3.5 and 3.9 percent fat, data are included for goat, reindeer, and human milk. The list of cheeses has been expanded to 16 and includes 3 processed cheeses and 2 types of cottage cheese. A number of baby foods and soups which contain varying proportions of milk products are included as well as several mixed dishes containing milk products, such as cheese fondue and various beverages.

A major expansion of the number of meats and meat products has been made. Data are included for about 175 beef items and beef products. For beef carcass, the composition of six market grades are shown in the new tables. Retail cuts, trimmed to the retail basis, are reported for the two most important grades, choice and good, and for each grade as raw and as cooked meat. Data are given for separable lean and separable fat tissue so that these can be combined in any desired proportions for individual needs. This provides for variations from the average in retail trimming, and additional trimming in the home. Data for pork are shown in a similar way with similar subdivisions but the major classifications are on the basis of fatness (fat, medium, and thin) rather than market grade. Fresh and cured pork items amount to 130. Veal is also classified by fatness rather than grade, with over 30 items included.

The list of poultry items is also considerably expanded. More kinds of poultry and more detail under each kind, especially for chickens, are included. The data for chickens are subdivided by class (fryers, roasters, etc.), and by raw and cooked. The new table includes about 60 items. Turkey items are subdivided by age and fatness--birds, medium-fat, and fat mature birds--and insofar as possible include raw and cooked forms.

#### B. Grain products

About 435 items of grain, grain products, and their preparations are included in the revision of Handbook 8. In addition to the major grains and flours which were listed in the previous edition, there are new processed or

prepared products including cake, pie, cooky, and roll mixes, on both the dry and prepared bases, and some frozen or chilled cakes, cookies, and pies. The list of breakfast cereals has been expanded to some 60 items including the ready-to-eat kinds and hot cereals, the latter both uncooked and cooked. Many baby foods and some soups containing grain products are also included.

Rice and its products account for about 25 of the total number of items in the grains group. There is a dearth of up-to-date reliable information on their composition, especially the mineral composition of rices of various types and forms.

#### C. Horticultural crops

Data for about 40 citrus and other subtropical fruits are included in the new edition of Handbook 8. For many of these foods sufficient data were available to permit classifying by variety or type, market form--raw, canned, frozen, juice, pulp--or other characteristic. The total number of citrus and subtropical fruit items included in the revised Handbook 8 is approximately 140.

Special attention has been given to bringing together and summarizing all data available on the deciduous fruits commonly used in this country, and all data available on tree nuts used in the U. S. The new edition contains information for deciduous fruits and fruit products subdivided on the basis of factors affecting content of nutrients. For example, data are shown separately for fresh and for stored apples. Other apple products included are canned, dehydrated, dried, frozen, and apple juice. A total of about 90 deciduous fruit items are included. Berries, grapes, and other types of fruit and their products add some 70 items to the table.

Tree nuts and their products for which data are included in the new edition total about 25 items.

Data for potatoes are given under five major subheadings, raw, cooked, canned, precooked dehydrated, and frozen. Data for potatoes cooked according to 10 different methods of preparation are listed separately. Data for flake and granule "instant" potatoes are shown for the dehydrated and for the ready-to-serve forms. A few soups and baby foods containing potatoes are also included in the new edition of the tables.

An extensive search has been made for data available on the composition of vegetables and products prepared from them. Some 80 vegetables (exclusive of potatoes) are included. The data are subdivided and presented in terms of over 400 items on the basis of the various factors found to be related to differences in values of important nutrients. These subdivisions include processing methods, such as canning, freezing, drying, cooking; stage of maturity (lima beans, tomatoes); type (sweetpotatoes); and variety (squash)--if these factors significantly affect the composition of the vegetables. Many baby foods and some soups largely of vegetable content are included.

D. Oilseeds and peanuts, sugar

Ten oilseeds and peanuts are included in the completed revision of Handbook 8. With their various products, the total number of items in this category is about 60. This includes 3 classes of peanut butter with different amounts of added ingredients, peanut spread, 17 salad dressings, and 22 soybean products. Sugars, sirups, and candies account for 55 items, the list of candies alone having been expanded to 35.

E. Other foods

A number of food items that are not classified under the previously discussed food groups are included in the revision of Handbook 8. The largest group in this category consists of fish and shellfish. There are 227 items in this class, including raw, canned, frozen, smoked, and cooked items. Other miscellaneous foods in this category are chocolate and cocoa, 13 items; beverages, carbonated and not carbonated, 11; alcoholic beverages, 8; baking powders, 10; plate dinners, 3; rennet powder and desserts, 4; yeast, 4; seaweeds, 5; and salt, starch, chewing gum, mustard, etc., 10.

### AREA NO. 3. FAMILY ECONOMICS

Problem. Levels of living of rural families, often substantially lower than those of urban families, can be described in part by the quantities of goods and services they use for family living and the quality of housing they occupy. Periodic studies describing the situation from time to time and showing the adjustments families make to economic change in their use of money and other resources are needed to facilitate the development of programs to improve levels of living, especially in underdeveloped areas. Family living surveys and other types of family economic research provide background information for consumer education and family living outlook reports. Data on quantities of clothing and household textiles used and the frequency with which they are replaced are needed in development of budgets and in delineating those groups for which demand for agricultural fibers might be expanded.

#### USDA PROGRAM

The Department has a continuing long-term program involving family economists, home economists, and statisticians in basic studies of family living expenditures of rural families and of their home-management practices, and the development of source material for consumer education and of information on the current family living situation and outlook. Most of the research is carried out by Department staff in Washington, D. C. Small-scale surveys are usually conducted under cooperative arrangements. For example, studies conducted in Ohio and Texas were cooperative with the Agricultural Experiment Stations in those States. Some research is carried out under contract as, for example, a study in North Carolina conducted by a private firm under contract. Other research, such as a Nationwide Survey of Consumer Expenditures is conducted cooperatively with other Federal agencies.

The Division's scientific effort devoted to research in this area in 1963 totaled 9.1 professional man-years. Of this number 5.3 were devoted to rural family living studies; 0.4 to family financial management; 0.6 to clothing economics; and 2.8 to the development of rural family living and outlook reports.

#### REPORT OF PROGRESS OF USDA AND COOPERATIVE PROGRAMS

##### A. Rural family living

1. Nationwide studies. The 1961 Survey of Consumer Expenditures covering urban, rural nonfarm, and farm populations, with collection of data completed in July 1962, has been in the editing and tabulating phases during the report period. The Consumer and Food Economics Research Division is one of several agencies within the USDA cooperating with the Bureau of Labor Statistics in

conducting this survey. This Division was assigned the responsibility for the professional review of the family living sections of the farm and rural nonfarm schedules. This review was completed in January. Considerable staff time has also been devoted to cooperating with the Statistical Reporting Service on planning the machine programming for the tabulation of the farm data in a form consistent with the BLS tabulations of urban and rural nonfarm data; and to reviewing intermediate steps in the machine work necessary to provide a check on the reasonableness, consistency and accuracy of data before final tabulations are run.

The Consumer and Food Economics Research Division will be responsible for the publication of the farm family living expenditure data. Discussions on the content and format of the publications have progressed to conferences between ARS and BLS information offices. It is expected that publications of these two agencies will be coordinated so that users of the data should have no difficulty locating comparable data for the three urbanizations. Two series are planned--one a set of basic reports providing information on all major categories of expenditure, the other analytical reports each devoted to an expenditure category, such as clothing, shelter, medical care.

2. Area or special-purpose studies. The University of Illinois has completed field work and is preparing a final report on a survey undertaken in cooperation with this Division and Divisions in ERS to study the reporting of assets and debts by farm families. A panel drawn from the depositors in and borrowers from cooperating banks and lending institutions in 3 Illinois counties were interviewed in 5 successive waves to determine the completeness of reporting of assets and liabilities and to develop techniques to obtain more complete reporting. Two general types of questionnaires were used, one requesting information on holdings of the items under study, the other requesting information on change in the level of holdings between specified dates. Responses were validated by the cooperating institutions. In general, the holdings form produced more accurate data on assets than the change form, but even it resulted in substantial understatement of the accounts reported by cooperating banks.

The difficulty in obtaining cooperation from banks in this study raises doubts as to the feasibility of the validation technique in a proposed survey based on a random sample of the population.

3. Rural area development studies. Two types of surveys have been conducted, designed to furnish information that will be useful in the formulation and evaluation of programs for improving levels of living of low-income families.

The first type of study provides information helpful to wives in low-income areas in determining whether it is feasible to take paid employment as a means to improving their families' levels of living. This information includes the share of the gross earnings of an employed wife that is available for use after deducting her various job related expenses, as well as the

higher family income taxes occasioned by the wife's earnings; and the changes that are likely to occur in home management practices as a result of her employment.

A draft of the bulletin on the second study of this type--conducted in Zanesville, Ohio, and in selected rural areas of four adjacent counties--has been completed. (The first study was conducted in Georgia and the report has been published.) Net incomes of urban wives were slightly higher than those of rural wives, principally because the latter had higher transportation costs to and from work. Although urban wives in the Ohio survey had appreciably higher earnings, on the average, than those reported by urban Georgia wives in the earlier survey (\$2,869 vs. \$2,200), approximately the same proportion of their salaries went to job-related expenditures (41% vs. 39.3%).

The Ohio data indicated that a major part of the net earnings of the working wives went for family living. Out of every 10 wives, urban and rural, seven said they pooled all of their earnings with their husbands', two handled it all separately, and one pooled part and handled part separately. A major part of the unpooled portion went for current living, according to the wives. In general, the employed wives used more paid help than the nonemployed for child care, laundry work, general housework, and sewing. However, the data indicated that there was no major shift of meal preparation and laundering to commercial agencies nor of housework to hired workers. An average of 18 out of a possible 21 meals were prepared in the homes of employed wives, 20 in homes of nonemployed wives. About 62 percent of the employed wives in the city and 74 percent in the country did home baking in a week (comparable figures for the nonemployed were 74 and 85 percent, respectively). Among those who baked, about as large a proportion of nonemployed as of employed wives used packaged mixes.

Preliminary analysis of data from a third and similar survey in North Carolina, conducted among urban wives in Gastonia and rural wives in three adjacent counties, showed both similarities and differences from the Ohio data. North Carolina wives, both employed and nonemployed, spent about the same amount for clothing as did Ohio wives in the comparable group, although incomes in Ohio were higher and a larger number of North Carolina wives wore special work garments rather than street clothing on their jobs.

About the same proportion of employed mothers with preschool children had paid help in the two areas; however, paid help was reported more frequently by other types of North Carolina wives, whether employed or not, urban or rural, than by their counterparts in Ohio. In North Carolina as in Ohio, the average number of meals served in the home during a week was smaller for employed than nonemployed-wife families, mainly because of the smaller number of noon meals in all-adult households. Practically all North Carolina wives, whether employed or not, did some home baking and packaged mixes were less popular with Southern homemakers than with those in Ohio.

In the second type of study conducted in low-income areas, data have been obtained on expenditures for family living and on the value of the goods and services used by families in the survey year. Information from these surveys provides the basis for comparing the levels of living attained by the families engaged in full-time farming with those supported partially or entirely by income from nonfarm sources. Data from surveys conducted in two areas in Texas are being processed; a bulletin on a study made in Kentucky is in press.

In these surveys the data on the value of goods used in the year are developed in large part from inventories of household equipment and clothing taken in the course of the interview and from a detailed description of the dwelling. Work on the three surveys has indicated that it is possible to get from families the information needed to measure consumption as contrasted with expenditures. Since this work was exploratory, the calculation of values for the goods consumed has been carried out at a level of detail that precludes applying the techniques to large samples. It remains to develop simplified techniques.

#### B. Family financial management

Anaylsis of data has been completed from the fifth and final in the series of surveys made by the Bureau of the Census for this Division to obtain information on selected household goods and automobiles for the purpose of developing tables of service-life expectancy under one owner. Data collected in this survey in May 1961 indicate that under current conditions of use, automobiles can be expected to serve their original owners 6 years and subsequent owners 4 years, freezers 15 years and 11 years, and electric clothes dryers serve their original owners 14 years.

For automobiles, separate estimates were also computed for American-made and foreign cars classified by the age and sex of the principal driver. Women were found to keep their cars longer than men, and older persons longer than younger persons. It was found that new American-made cars are driven for an appreciably longer time than are new foreign cars. Data on these two types of cars are not available separately by age of driver; this may be an important factor in this difference.

Service-life expectancy under one owner has been determined for 17 items in this series of five surveys. Effects of degrees of urbanization and region have been investigated but no statistically significant differences have been found. These studies included two observations for 5 items--automatic and wringer or spin-dryer washing machines, electric refrigerators, and gas and electric ranges. Over the relatively short period between these observations-- $3\frac{1}{2}$  years at most--service-life expectancy under one owner has appeared to lengthen although differences between the paired observations are not significant.

Because of the interest of the industry in the age distribution of appliances, a publication presenting the basic data and methodology of this series of surveys will be prepared.

"Helping Families Manage Their Finances," issued in June 1963, is a publication for the use of educators and others who work with families. It is expected that it will be widely used by high school and college teachers, extension workers, and social welfare workers. It discusses in detail the steps and considerations in setting up and using a family spending plan; presents data about actual spending patterns of families of various types, as indicated by consumption studies; gives useful information about consumer and mortgage credit, savings, and insurance; and provides a list of references on consumer buying and other phases of money management.

Material for a popular bulletin on budgeting for young couples, is being developed largely from the above publication by staff in this Division.

#### C. Clothing economics

Progress toward the development of clothing budgets has been made by a special analysis of clothing expenditure data from an East Texas study in 1958. The completed analysis will aid in the selection of the most appropriate method of classifying families in the current nationwide Survey of Consumer Expenditures into approximately equivalent levels of living--one of the major problems in the development of clothing budgets. The East Texas data indicate that individuals' clothing expenditures are more closely related to value of goods and services received per person than to other classifiers tested (including value of family goods and services received; family income after taxes, and per person income after taxes). Correlations of individual clothing expenses with selected classifiers were not significantly different for whites and nonwhites.

Plans include completion of tests of a few classifiers for selected clothing items purchased for individuals, preparation of a technical paper on this analysis, and the construction of a sample clothing budget for the East Texas families.

This analysis will prepare for the use of the nationwide data from the Survey of Consumer Expenditures in the development of more definitive budgets.

#### D. Development of rural family living and outlook reports

During the past year this Division has issued the Family Economics Review quarterly and taken responsibility for four Family Living Sessions for the Annual Agricultural Outlook Conference held in 1962. The Division is again developing programs for four Family Living Sessions for 1963 and is taking

the leadership in developing a general session--the Economic Outlook and the Consumer. Division staff prepared five papers for the 1962 Family Living Sessions and the statement on the outlook for family living in the paper presenting the Agricultural Outlook at the general session as well as charts for the Family Living Section of the Chartbook.

PUBLICATIONS REPORTING RESULTS OF  
USDA AND COOPERATIVE RESEARCH

Rural Family Living

Rural area development studies

Holmes, E. G. 1962. Some management practices and expenditures of employed wives. Paper presented at Ann. Agr. Outlook Conf. (Processed)

Holmes, E. G. 1962. Clothing expenditures of employed wives. Family Economics Review, ARS 62-5. Sept. pp. 18-20.

Wolgamot, I. H. 1963. Job training--a resource for rural people. Family Economics Review, ARS 62-5. Mar. pp. 6-7.

Wolgamot, I. H. 1963. Opportunities unlimited. Paper presented at the Family-Economics Home Management Section. Amer. Home Economics Assn. Ann. Meeting.

Wolgamot, I. H. 1963. RAD offers opportunity to home economists to contribute to better rural living. Jour. of Home Economics. 55(3): 184-186.

Wolgamot, I. H. 1963. Home grown foods aid low income. Agr. Research. Mar.

Family Financial Management

Consumer and Food Economics Research Division. 1963. Helping families manage their finances. Home Economics Res. Rpt. No. 21. 62 pp.

Pennock, J. L. 1962. Planning ahead for the buying of major equipment. Paper presented at Ann. Agr. Outlook Conf. (Processed.)

Development of Rural Family Living and Outlook Reports

Consumer and Food Economics Research Division. 1962. Family Living. Section 6 in 1963 Agr. Outlook Chartbook.

Consumer and Food Economics Research Division. 1962-63. Four issues of Family Economics Review, ARS 62-5. Sept. 1962, 23 pp; Dec. 1962, 32 pp; Mar. 1963, 24 pp; June 1963, 20 pp.

Britton, V. 1962. Supplies and prices of clothing and textiles. Paper presented at Ann. Agr. Outlook Conf. (Processed.)

Mork, L. F. 1962. Coin-operated drycleaning. Paper presented at Ann. Agr. Outlook Conf. (Processed.)

Webb, L. M. 1962. Housing, household furnishings, and equipment. Paper presented at Ann. Agr. Outlook Conf. (Processed.)

Line Project Check List -- Reporting Year July 1, 1962 to June 30, 1963

Work & Line Project Number	Work and Line Project Titles	Work Locations During Past Year	Line Proj. Summary of Progress	Incl. in Area and Subheading
CFE 1	Food consumption and dietary levels.			
CFE 1-1 (Rev.)	Nutritive content of the U.S. per capita food supply, 1909 to present.	Washington, D. C.	Yes	1-D
CFE 1-2 (Rev.)	Household food budgets.	Washington, D. C.	Yes	1-F
CFE 1-3	Food consumption and dietary levels of selected low-income population groups.	Washington, D. C.	Yes	1-B-1
CFE 1-4	Variability in household food consumption.	Washington, D. C.	No	
CFE 1-5(C)	Household practices in handling and storing of frozen foods.	Washington, D. C.	Yes	1-E-2
CFE 1-6	Analysis and interpretation of data on household food consumption and dietary levels.	Washington, D. C.	Yes	1-A-1
CFE 1-7	Food consumption of individuals related to economic and social factors.	Washington, D. C. St. Paul, Minn.	Yes	1-C-1
CFE 1-8(C)	Household practices in homefreezer management.	Washington, D. C. Philadelphia, Pa.	Yes	1-E-2
CFE 2	Appraisal of foods and diets for human nutrition.			
CFE 2-1 (Rev.)	Development of basic information for food and nutrition programs.	Washington, D. C.	Yes	1-G
CFE 2-2	Tables of composition and nutritive value of foods.	Washington, D. C.	Yes	2-A through E
CFE 2-3(C)	Use and discard of edible food in households.	Washington, D. C.	Yes	1-E-1
CFE 2-4	Effects of food distribution programs on diets of needy families.	Washington, D. C. Choctaw Co., Okla., Pensacola, Fla.	Yes	1-B-2

Line Project Check List -- Reporting Year July 1, 1962 to June 30, 1963

Work & Line Project Number	Work and Line Project Titles	Work Locations During Past Year	Line Proj. Incl. in Summary of Progress	Area and Subheading
CFE 3	Rural family expenditures and household management.			
CFE 3-1 (Rev.)	Development of family living and outlook reports.	Washington, D. C.	Yes	3-D
CFE 3-2 (Rev.)	Determination of replacement rates for household durable goods.	Washington, D. C.	Yes	3-B
CFE 3-3(c)	Family expenditures and household management practices related to the gainful employment of wives.	Washington, D. C.	Yes	3-A-3
CFE 3-4	Farm family expenditures as obtained from a continuous reporting system in Michigan.	Washington, D. C.	No	
CFE 3-5	Rural family living in selected underdeveloped areas of Texas.	Washington, D. C.	Yes	3-A-3
CFE 3-6	Survey methods for obtaining data on farm family income, savings, assets and debts.	Washington, D. C. and Urbana, Ill., Logan, DeWitt, Macon, Christian, Shelby, and Moultrie Counties, Ill.	Yes	3-A-2
CFE 3-7	Rural family spending patterns in 1961.	Washington, D. C.	Yes	3-A-1
CFE 3-9	Development of clothing budgets.	Washington, D. C.	Yes	3-C
CFE 3-10	Use of time by homemakers.	Washington, D. C.	No	





